THE ROLE OF UNIVERSITY LIBRARIES IN RESEARCH

Chapter 4

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4.1 History of Universities
4.2 The Role of Universities in Research
4.3 Role of University Libraries in Research
4.4 Online Environment and Changing Trends
4.5 University Libraries- An Overview of Indian Scenario
4.5.1 Information and Library Network
4.5.1.1 UGC-Infonet E-journals Consortium
4.6 Library Websites and Research Help
4.6.1 University Libraries Selected for Review
4.6.2 Research Guides/Research Help Facility
4.6.3 Digital Reference Service
4.6.4 User-friendly Display of Library Collections
4.6.5 Web OPAC and Other Catalogues
4.6.6 Subject Gateways
4.6.7 Web Based Information Literacy Programmes
4.6.8 Institutional Repositories
4.7 Conclusion
Chapter 4

THE ROLE OF UNIVERSITY LIBRARIES IN RESEARCH

This chapter attempts to provide a brief sketch of the process of research and the role of university libraries in supporting research carried out by universities. An overview of the development of university libraries in the country has been given. An attempt has been made to understand how the libraries of top ranking universities help their research scholars through different library services and strategies.

4.1 History of Universities

Education is one of the fundamental social institutions through which society transmit to the young generations the values, norms and knowledge essential for effective participation in social life. It is a crucial investment in the economy and an economic resource. It is indeed the key to social mobility. Education ensures equality, quality, relevance, access, choice, respect and partnership. Since learning is critical to social life, societies do not leave it to chance. The process of education is organized through the formal institutions of schools, colleges and universities. Among them, universities play an important role.

Universities function as the focal centre of higher education. They are dynamic and innovative institutions of higher learning and scholarship. They are committed to higher quality research across all disciplines. They play a key role in the generation, transfer and application of new knowledge. They
provide trained manpower for industry, agriculture, administration, services and all other sectors. The intellectual dynamism, resourcefulness and economic prosperity of a country are reflected in the quality of university education.

The word 'university' was derived from the Latin word 'universitas' which originally referred to any guild or association. Modern universities had their beginning in the institutions started in the Christian church in Europe during the Middle Ages. European universities were not the first in the world, however. The University of Al Azhar, founded in Cairo in the 10th century is the oldest that is still in operation. A group of students brought together by a common interest started some of the early European universities. The University of Bologna, in 11th century in Italy and the University of Paris in the 12th century were started in this way.

The University of Halle in Germany, opened in 1964, introduced the idea of the university as a centre for research. The University of Gottingen, founded in 1737, advanced this trend in higher education. The late 18th and 19th century saw the spread of new scientific studies, extension of the concept of academic freedom, and a widening acceptance of the university not only as a conveyor of established knowledge, but as a centre of research. These developments, which originated in Germany, influenced other European universities first and those in the new world a little later.

4.2 The Role of Universities in Research

Research is a structured inquiry that utilises acceptable scientific methodology to solve problems and creates new knowledge that is generally
applicable (Grinnell 4). It is a systematic investigation to find answers to a problem (Burns 2). Research is a process for collecting, analyzing and interpreting information to answer questions. But to qualify as research, the process must have certain characteristics: it must, as far as possible, be controlled, rigorous, systematic, valid and verifiable, empirical and critical (Kumar 7).

Since the opening of the University of Halle in Germany, the primary function of universities across the world has been offering opportunities for conducting research in all areas of human knowledge. Universities fuel research by providing access to an environment that includes high quality teaching community, up-to-date materials, and modern facilities.

4.3 Role of University Libraries in Research

The process of research in universities is organized in a way that many components are essential factors for the success of research and innovation. The establishment and maintenance of a resource rich service library is one of the important prerequisites of university education system. Hence the value of university libraries.

University libraries are essential part of university education and research. The historical development of university libraries has been influenced by the contexts in which the parent organisations operate. The vision, mission and strategies which are selected by universities as a guide for meeting the core functions of teaching, learning, research and providing community service
form the foundation on which the role of the university library is based (Wolpert 34).

The successful completion of any research project requires reference to a large quantity of recorded knowledge. Learning, research, and the library often appear to be a natural mix. Their union in higher education is not only desirable, but is also integral to the conduct and success of teaching and learning (Edward 282-94). Libraries take part directly in research process and hence are components of knowledge innovation, and are involved in the diffusion and conversion of knowledge thereby acting as bridges for turning the results of knowledge into realistic productive entities (Cao Yi 17-19).

In achieving the mission of the university, the library has the unique role of providing access to a carefully selected portion of the global intellectual record through planned acquisitions programmes, information literacy programmes, and user oriented information services. Besides the library has repository and archival responsibility for university publications, and provides a physical environment and remedial treatment conducive to longevity for library materials.

There are mainly seven steps involved in a research process: choosing a topic, finding background information, redefining the topic, selecting resources, searching for information, evaluating resources, and citing sources. In each step, a university library offers valuable help and support to the research scholar. The secondary information sources assist the students in the selection of a problem. The process of review of literature is made possible
with access to an extensive library collection in different formats. When the required documents are not available in the library, it is accessed through interlibrary loan. With the advent of information and communication technologies, libraries are able to help the scholars in accessing online documents and literature available through World Wide Web. Document delivery services are organised to supply articles and documents possessed either by libraries in the country or outside the country.

There are some special information services offered by university libraries that connect the world of research scholars with that of current information. The availability of new books, current articles, oncoming conferences on a topic, information appeared in newspapers are brought to the notice of research scholars through Current Awareness Service (CAS). Selective Dissemination of Information (SDI) is another specialised service that brings requested current information with the help of computers. Literature search is carried out for research scholars to retrieve relevant information from databases, online journals and the World Wide Web.

Libraries can offer special attention to the research scholars by providing them separate physical space within the library to encourage undisturbed learning and research. The scholars are offered more library tickets than the normal users in order to loan more books at a time. Apart from providing services and facilities, the university libraries offer the scholars education on the use of both resources and resource discovery tools for selecting, using and evaluating the documents effectively.
4.4 Online Environment and Changing Trends

The essence of research activity, the creative thinking of the researcher aimed at contributing new knowledge and understanding, has remained unaltered throughout the centuries. The research environment and the research process, however, have been undergoing, for quite some time now, dramatic changes, with the advent of innovative information technologies and their ever-growing utilization for scholarly purposes (Herman 387-401). The 1990s greatly enhanced researchers' information handling capabilities, offering them a constantly growing array of Internet-based full-text databases and electronic journals, with hypertext and hypermedia linking, marking the way to the evolution of the digital library and the goal of providing flexible, demand-based electronic access to information that often has no physical format or location (Herman 431-57). Now we live in an age in which all institutions and social activities are plugged in to digital technology. This technology with its tremendous potential has altered the way people access, use, create, distribute, and store information.

The digital technology has made its impact on library services and operations also. The collection of books, manuscripts and other physical material continues to be important, but acquisition of resources in digital form involves a shift from ownership to access. Much of this digital content is not owned by the library but is made accessible based on licencing agreements negotiated with publishers and vendors. This has changed the relationship of libraries to their collection, with a significant loss of control over how material
is organised and accessed. The nature of work of librarians is also changing, as users are increasingly demanding support for accessing online resources.

Now all types of libraries are applying digital technologies to their environment. Academic libraries set their websites as gateways to various online resources that include databases, library catalogues, E-books, E-journals, selected websites and locally developed digital collections. Digital technology has reached a point where it is so pervasive that it cannot be ignored.

Digital libraries offer better delivery of information than was possible in the past. Researchers can access a digital library any time and anywhere that the necessary technology is available. A digital library delivers to the user’s desktop not only bibliographic data about library collection and journal publications but also abstracts and full text documents. It can link researchers to unique collection and archives from all over the world. Digital libraries are capable of delivering services as well as information. A digital library user may take an online library orientation or tutorial, renew materials online, use e-mail to request particular materials or services, or interact with the librarians in real time using chat based reference services.

Digital libraries and Internet collapse many of the restrictions of space and time to supply scholars and faculty with unparalleled access to research materials. There exist many research initiatives for providing more information digitally.

Many university libraries are attempting to create portals themselves, which provide a unified and user-friendly interface to information services of
interest to their user communities, some of which are subscription based and hence not publicly available.

Open Access (OA) movement started a new era of global information flow. It is defined simply as "free, unrestricted access (to primary research articles) for everyone" exists in various forms (Morris 304-307). There are currently over 1200 fully Open Access journals (DOAJ). Librarians in universities can help to filter the huge flow of information and to select topics of interest to the local users and serve them in an appropriate form. The role of libraries in providing effective access to OA journals has made a tremendous impact on the provision of literature and the process of research in universities the world over.

4.5 University Libraries–An Overview of Indian Scenario

In India, the role of university libraries has been identified and pointed out by various Education committees and commissions. Radhakrishnan Commission (1948-49) emphasized the importance of the library in research as.

"The library is the heart of all the universities work: so as regards its research work, and indirectly as regards its educational work, which derives its life from research work. Scientific research needs a library as well as its laboratories while for humanistic research the library is both the library and laboratory in one. Training in higher branches of learning and research is mainly a question of learning how to use the tools, and if the library tools are not there, how can the student learn to use them"(India, Education Commission 110).
Kothari Education Commission (1964-66) observed that "No university, college or department should be setup without taking into account its library need in terms of staff, books, journals, space etc. Nothing could be more damaging to a growing department than to neglect its library or to give it a low priority. On the contrary, the library should be an important center of attraction on the college or university campus" (India, Education Commission 287). In truth and effect, the quality of teaching and research work in any institution is depending upon the potential of the library to respond (Buck 9). The university library should be designed to support the role, which has been assumed by or assigned to the university. It is this important academic role of the library that was stressed by Dr. Shankar Dayal Sharma, the former vice president of India, who said: "a library is more important than a university because a library can function without a university where as a university cannot do without a library" (Inamdar and Ramaiah xii).

The earliest known university in India was Taxila. It was a famous seat of learning from 700 BC to AD 300. Even though it was a famous seat of learning, archeological excavations found no libraries there. It may be due to the reason that the medium of communication was oral at that time. With the advent of Buddhism, teaching came to be practiced through written word and this in turn gave rise to libraries. The Nalanda University set up in the fourth century had a huge library complex known as Dharmaganj. Other ancient seats of learning like Jagaddal, Kanher, Mithila, Odantapuri, Somapuri, Ujjain, Vallabh, and Vikramasila had good collections of manuscripts in their libraries.
In the medieval period, though the Muslim rulers patronized libraries in their palaces, academic libraries did not exist, except a college library at Bidar.

College libraries are the fore-runners of modern university libraries in India. British rulers had given importance to academic library development. In later nineteenth century three universities were set up at Mumbai, Calcutta, and Madras in 1857 on the model of London University which itself was an examining body then. Since these universities had no role to play in teaching and research, the need for attaching a library to them immediately after their establishment was not felt. There was a long time gap between the establishment of these universities and that of their libraries.

The Indian Universities Commission (1902) and The Calcutta University Commission (1917-1919) recommended the need for good reference libraries in universities and colleges. During the period of 1919-1930, eight new universities were established with libraries attached to them.

In Post independence period, the Government of India appointed the University Education Commission (1948-49) to enquire the existing condition of university education. The Commission strongly recommended the importance of library in a university. Kothari Commission (1964-66) also emphasized the need for quality in the provision of library services. The reports of these commissions laid down the guidelines for establishment, organisation, growth, and maintenance of university libraries in the country on scientific line.

The establishment of University Grants Commission (UGC) in 1956 was a significant event for the growth and development of universities in the
country. UGC discharges the Constitutional mandate of coordination, determination, and maintenance of standards of teaching, examination and research in universities and higher education institutions. UGC serves as a vital link between the Union and State Governments and the institutions of higher learning. It monitors developments in the field of collegiate and university education; disburses grants to the universities and colleges; advises Central and State Governments on the measures necessary for the improvement of university education; and frames regulations such as those on the minimum standards of instruction.

The contributions of UGC towards university libraries started with the recommendations of the Library Committee headed by Dr. S.R. Ranganathan. UGC accepted most of the recommendations of this committee and provided liberal grants to universities for uplifting their libraries from their pitiable conditions (Prasher 31). The establishment of an Inter University Centre (IUC) in the field of Library and Information is another significant event.

4.5.1 Information and Library Network (INFLIBNET)

Information and Library Network (INFLIBNET) was started as a project under the Inter University Centre for Astronomy and Astrophysics (IUCAA) in 1991 with its head quarters at Ahmedabad. It became an independent Inter University Centre (IUC) of UGC in 1996. INFLIBNET was designed to be a major player in promoting scholarly communication among academics and researchers in India.
During the past ten years, INFLIBNET has played a significant role in the automation of university libraries in India. To bring the information technology culture in the universities and automate the university libraries, funds were provided for five years depending on the size of the universities to establish computer system facility in the university libraries with a non-recurring grant for establishing computer and network infrastructure and recurring grants for five years for maintenance. This helped the libraries substantially to procure the hardware and software for library automation activities.

The INFLIBNET conducted intensive training courses and workshops for the professionals, developed a library management software (SOU L), built up union databases of materials of universities and provided access through its website http://www.inflibnet.ac.in. INFLIBNET has been instrumental in creating an Information Technology conscious environment in the university libraries in India (Cholin 189-197)\textsuperscript{16}.

4.5.1.1 UGC-Infonet E-journals Consortium

Realizing the need for a common mechanism for access to scholarly information, UGC set the priority to provide access to scholarly communication for the research and academic community by supplementing existing collection in the individual universities. UGC-Infonet E-Journals Consortium was set up by the UGC with close cooperation with Education and Research Network (ERNET), the Inter-University Centre for Astronomy and Astrophysics (IUCAA), INFLIBNET and the international publishers. Began in
January 2004, this is an important step towards enhancing access to scholarly journals and databases by the academic community in India. So far, one hundred universities were brought under this programme. Through the consortium, about 4000 full text scholarly electronic journals from twenty-five publishers across the world can be accessed. It facilitates both current as well as archival access to core and peer-reviewed journals in different disciplines.

Table 4.1 represents electronic resources subscribed under UGC-Infonet E-journal Consortium.

**Table 4.1  Electronic Resources Subscribed to Under UGC-Infonet E-Journal Consortium**

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Name of the Publisher</th>
<th>No. Databases/ Journals</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>American Chemical Society</td>
<td>31 journals</td>
</tr>
<tr>
<td>2</td>
<td>Royal Society of Chemistry</td>
<td>6 databases and 23 journals</td>
</tr>
<tr>
<td>3</td>
<td>Nature Publishing Group</td>
<td>1 journal</td>
</tr>
<tr>
<td>4</td>
<td>Institute of Physics Publishing</td>
<td>36 journals</td>
</tr>
<tr>
<td>5</td>
<td>Cambridge University Press</td>
<td>189 journals</td>
</tr>
<tr>
<td>6</td>
<td>Project Muse</td>
<td>222 journals</td>
</tr>
<tr>
<td>7</td>
<td>Biological Abstract</td>
<td>1 database</td>
</tr>
<tr>
<td>8</td>
<td>JSTOR</td>
<td>450 journals</td>
</tr>
<tr>
<td>9</td>
<td>American Physical Society</td>
<td>8 journals</td>
</tr>
<tr>
<td>10</td>
<td>Science Online</td>
<td>1 journal</td>
</tr>
<tr>
<td>11</td>
<td>Springer</td>
<td>200 journals</td>
</tr>
<tr>
<td>12</td>
<td>Elsevier Science-Life Sciences</td>
<td>34 journals</td>
</tr>
<tr>
<td>13</td>
<td>Emerald</td>
<td>28 journals</td>
</tr>
<tr>
<td>14</td>
<td>Annual Reviews</td>
<td>29 journals</td>
</tr>
<tr>
<td>15</td>
<td>Taylor and Francis</td>
<td>100 journals</td>
</tr>
<tr>
<td>16</td>
<td>MathSciNet</td>
<td>1 database</td>
</tr>
<tr>
<td>17</td>
<td>Portland Press</td>
<td>4 journals</td>
</tr>
<tr>
<td>18</td>
<td>Blackwell</td>
<td>450 journals</td>
</tr>
<tr>
<td>19</td>
<td>Oxford university press</td>
<td>165 journals</td>
</tr>
</tbody>
</table>

From the Table 4.1 it can be seen that worlds leading publishers are involved in the e-journals consortium. The literature made available includes
journals covering research articles, reviews and abstracting databases. Besides E-journals the consortia also gives access to portals like 'Ingenta'. This gateway portal provides full text access to the journals subscribed and access to the level of abstracts for all other non-subscribed journals.

The UGC-Infonet E-Journals Consortium is bridging the gap between information and its user (Murthy et al 658-67)\(^7\). The programme has given a long way in mitigating the severe shortage of periodicals faced by university libraries for many years. As journals are carriers of the latest scholarly information the e-subscription, initiatives under UGC-Infonet are expected to stimulate remarkable increase in sharing the electronic resources amongst universities across the country.

### 4.6 Library Websites and Research Help

Libraries face stiff competition from search engines. These for-profit players have invested significantly in their front-end screens and marketing strategies, and can serve up quick bites of information the way users want fast and easy. To overcome the situation the only measure is creation of robust library Web sites (Detlor and Lewis 251-58)\(^8\). The online environment has offered wide opportunities for librarians to support the process of information seeking and using especially for research. The design and development of user centred Web sites is an important step that not only provide users with access to online catalogs, subscribed resources, and other electronic content but also create virtual environments, which enable them to personalise the selection and presentation of collections, to channel the delivery of value added services, to
engage in two-way communication with library staff and, in some cases, to
even collaborate with other library users.

4.6.1 University Libraries Selected for Review

The investigator reviewed the library websites of top ranking universities with an objective to know how they are supporting their research scholars. The following four top universities from a list of one hundred universities, as listed in the Institute of Education in Shanghai at Jiao Tong University (SJTU) academic ranking of world's universities in 2004 are selected for examination.

1. Harvard University (USA)
2. Stanford University (USA)
3. Cambridge University (Britain)
4. Tokyo university (Japan)

The first three universities are top ranking universities and Tokyo University (12th position in the ranking) was selected for review because it is the only university from Asia. All these universities are world's leading research and teaching institutions (Goodall 388-411). The investigator examined the university library websites of the four universities for a period of six months from September 2006 to January 2007. The facilities checked includes: Research Guides/ Research Help Facility, Digital Reference Service, User-friendly Display of Library Collections, Web OPAC's and Other Catalogues, Subject Gateways, Web Based Information Literacy Programmes, and Institutional Repositories.
4.6.2 Research Guides/Research Help Facility

Majority of the libraries has given an icon ‘Research guides’ or ‘research help facility’ in their webpage exclusively for research scholars. This facility provides a real assistance to research scholars throughout his/her research process. This service offers subject specialist directory, research quick start guides, A to Z research subject list, subject wise arrangement of various kind of resources, information about how to create bibliographies and manage citations, reference tools etc. Fig. 4.1 shows webpage of Stanford University Library.

Fig. 4.1 Research Help Interface of Stanford University Library (http://www.sul.stanford.edu/)
From the figure 4.1, it can be seen that research help icon is given in the home page itself. A researcher can easily navigate the links given under this icon. The link ‘How do I find’ provides information about where to look for different types of materials and collections.

Research quick start guides give a list of topics and information sources available in that particular topic. Subject Specialists are available for advanced research consultation under the link ‘Subject specialist directory’. The list of subject specialists is arranged alphabetically by general subject with a detailed list of all subject areas, and a list of subject specialists arranged alphabetically by name. Reference shelf icon offers access to categorized reference sources available at Stanford and on the web. Subject wise collections are given under major three subject headings.

4.6.3 Digital Reference Service

Reference services provided over the Internet, usually via e-mail, instant messaging (“chat”), or through Web-based submission forms by reference staff, come under digital reference. Digital reference services are known in different names like chat reference, e-reference, online reference, ask a librarian and virtual reference. The Figure 4.2 illustrates digital reference service of Tokyo University library.
The Tokyo university library’s digital reference service is known as ‘Ask Service’. The service allows the users to forward their questions to library through Internet. In ‘Ask service’ answers are usually provided by e-mails. Digital reference services are performed in a variety of forms like chat and telephone. Digital reference service facilitates research process in multidimensional way. It saves time and provides quick assistance, guidance and interaction.

4.6.4 User-friendly Display of Library Collections

The University libraries of top ranking universities organise their materials to make it user-friendly and fully searchable, and serve as the host for this documents. Comprehensible display will automatically lead the users to the content. The Figure 4.3 explores Cambridge University library’s home page.
Figure 4.3 shows Cambridge University library’s e-journal search interface. Three search criteria are given in the web page. Users can browse e-journals by title, ISSN or by subject. In addition to this facility, alphabetical listing of journal titles is also provided. The webpage has also supplied list of publishers who offered e-journals in the university library. This type of categorised arrangement assists the research scholars to mine right information at the right time.

4.6.5 Web OPAC and Other Catalogues

Web based catalogues accelerate the use of resources. Users can access library catalogues anywhere any time. Some libraries make provisions to
search catalogues of other libraries also. The figure 4.4 shows Harvard university library’s web page of catalogues beyond Harvard.

**Fig. 4.4** Harvard University Library Web Page of Catalogues
(http://lib.harvard.edu/catalogs/listings.html)

The Fig.4.4 shows the catalogue of many libraries that includes regional, national and international catalogues. Through the library website, the scholars can access a number of catalogues of world’s leading universities and institutions like Library of Congress and MIT. This will enable the researcher to widen the search dimensions and save time for locating catalogues.

**4.6.6 Subject Gateways**

The Australian Subject Gateways Forum has defined a subject gateway as "a Web-based mechanism for accessing a collection of high quality.
evaluated resources identified to support research in a particular subject discipline" (ASGF). It is a web site that helps searching and accessing online resources focused around a specific subject. Arrangement of freely available Internet sources helps the researchers navigate their specific research needs.

The figure 4.5 presents subject gateway of Cambridge University Library.

**Fig 4.5** Subject Gateway of Cambridge University Library
(http://www.lib.cam.ac.uk/electronicresources/websites.htm)

Subject Gateway at Cambridge University library offers a comprehensive list of quality online resources across the whole range of academic disciplines. This catalogue gives direct links to related websites selected and evaluated by the library, thereby helping researchers save their time.
4.6.7 Web Based Information Literacy Programmes

Information literacy is the ability to search, locate, use and evaluate information sources. The figure 4.6 illustrates web based information literacy programme of Stanford University library.

**Fig.4.6** Web based Interactive Tutorial Session of Stanford University Library (http://skil.stanford.edu/intro/index.html)

The individual modules of SKIL cover key concepts about research skills and resources, with interactive exercises to reinforce your learning. We highly suggest that you do the modules in order, as each subsequent module builds upon previous knowledge. Plan on about twenty to thirty minutes per module. It is best to complete one module at a time, we strongly advise not to attempt all of the modules at one time.

You can navigate through SKIL using the arrows at the top or bottom of each screen in order to move forward or backward within each module. Should you decide to take a break, look at the page number you are on at the bottom of the screen and when you return, type in that number in the Change Page box. In the top right comer, you will find links for Help, the Sitemap, and the Glossary. Across the top, the tabs are clickable links, which take you to the first page of each module. On that page is a Table of Contents for that particular module.

At the end of each module is a ten-question quiz. The self-assessment is for your practice and you can go through each one as many times as you need. The goal of the practice questions, which give you immediate feedback, is to prepare you for the final test.

The web based information literacy programme is an essential service especially for research scholars for finding their resources easily. This service gives the research scholars an overall idea about library's resources, services and facilities.
4.6.8 Institutional Repositories

Institutional repositories are content management systems to house the digitally formatted works. They help to collect, make available, and preserve important scholarly material of all kinds, especially that of materials produced by the faculty and research community. The figure 4.7 shows the window of the institutional repository created by the Cambridge University library.

**Fig. 4.7** Web Page of Digital Repository of Cambridge University Library (http://www.dspace.cam.ac.uk/)

![DSpace at Cambridge: Home - Microsoft Internet Explorer](image)

There are several softwares available in building institutional repositories. From the figure 4.7, it can be seen that Cambridge University library is using DSpace, developed by the MIT libraries. University libraries
have made use of the utilities of digital repositories for managing, hosting, preserving and enabling the distribution of scholarly communication.

4.7 Conclusion

The role of university libraries in supporting research is remarkable in many ways. They are responding to the ever-increasing demands of scholars for quality literature, in a format convenient for them and at a time, they most need the information. University libraries are enhancing access to more resources available in other libraries through consortia. They have built interactive websites for helping their users access the library any time anywhere. When the focus of publications shifted from print to electronic, libraries managed these developments through accommodating electronic environment in the libraries. They created institutional digital repositories to help manage the flow of published materials and knowledge created by the institutions. Subject gateways maintained in the websites of university libraries offer quick access to the resources available on other sites.

Everything is constantly changing and changing fast. Librarians combine the traditional roles with powerful technologies and expertise to mine the great opportunities for information handling in the new era. They are performing their research role through different platforms.
REFERENCES


Acceptance of IT Based Information Resources in Academia.


